

# Eco-efficiency and Economic Growth Business and Government Policies Converging on Sustainability

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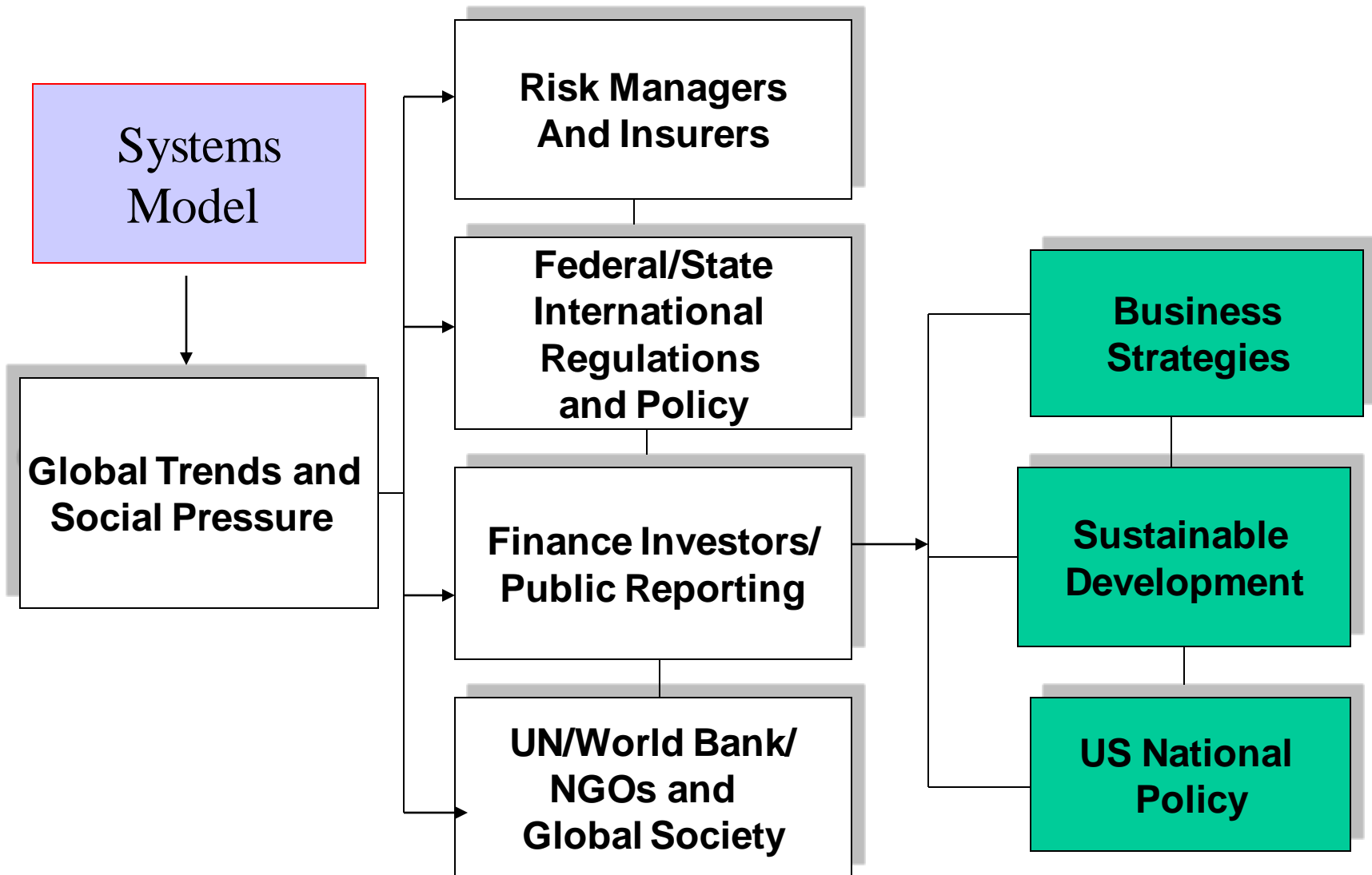
June 2010



# *Main Points*

- Because of a variety of business, government, and social pressures **business and government polices are converging on sustainability** (see pressure-state-response systems model)
- Four things are needed to make sustainability operational: **science and technology, policy and regulation, green business practices, public support**
- Rate of convergence to sustainable practices vary in different economic sectors
- US (and EPA) moving more toward sustainability





See: Alan D. Hecht in Sustainable Development Law and Policy,  
Volume VIII, Fall 2007



# *Linking of Risk and Sustainability*

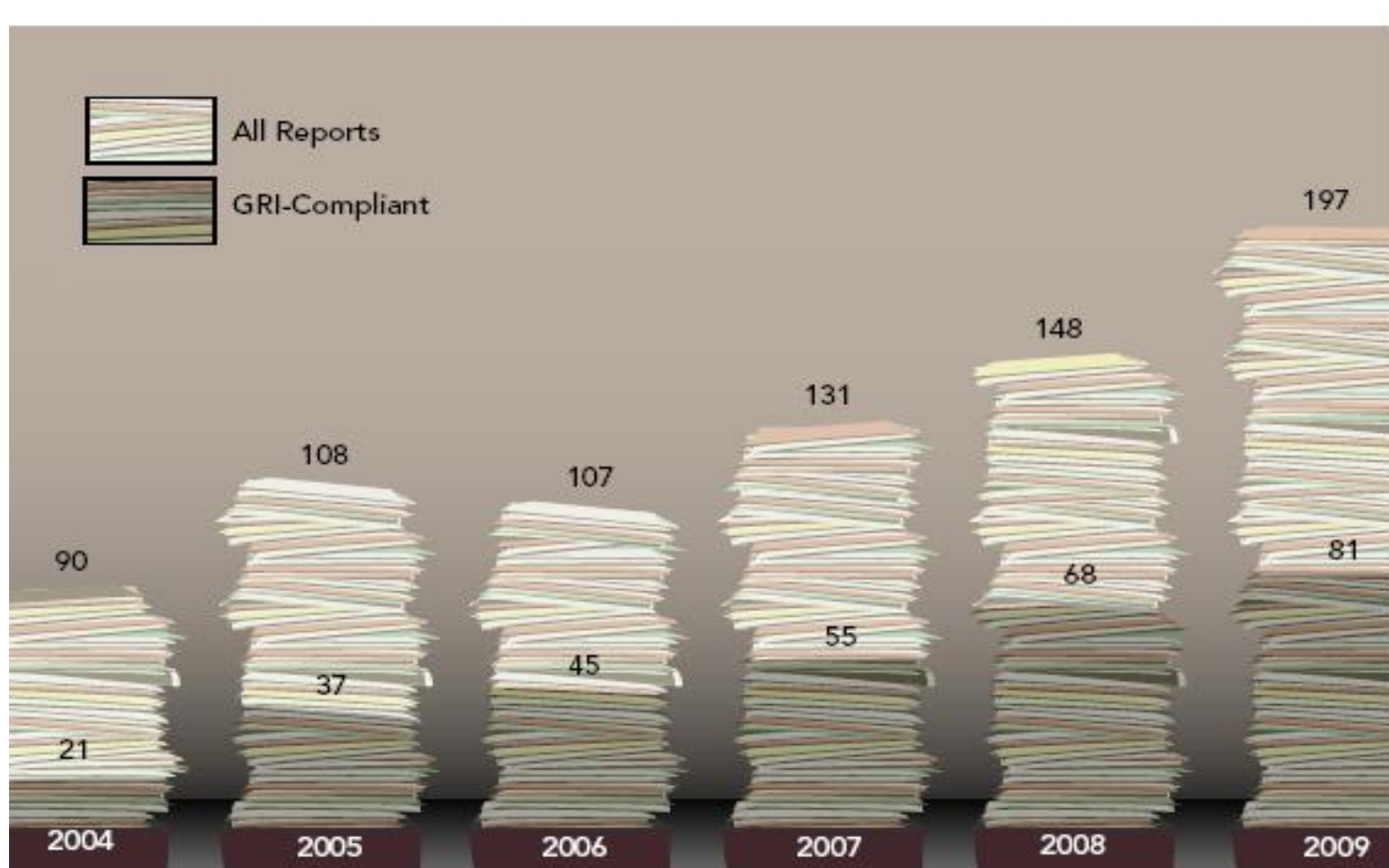
Unsustainable development increasingly needs to be understood as having the potential to substantially change the risk landscape.

— *Swiss Re Sustainability Report, 2004*



# Corporate Social Responsibility Reports

*Number of reports filed by S&P 500 companies*



Source: CorporateRegister.com



# ***EU Directives Impact Manufacturing***

- Restriction of Hazardous Substances Directives (RoHS)
- Waste Electrical and Electronic Equipment (WEEE)
- Registration, Evaluation and Authorization of Chemicals (REACH)

## Implications:

- Regulate products (input) not outputs
- Manage material not waste
- Need for life-cycle assessment (cradle to grave management)
- Adopt green engineering-green chemistry
- Shift burden of proof to industry (stewardship)
- Measure future financial risk and liabilities



# Linking Manufacturing Practices To Sustainability

- Reduce material intensity of production and consumption
- Substitute environmentally preferable materials for hazardous ones
- Minimize waste and emissions throughout the cycle life
- Increase energy efficiency throughout the product life cycle
- Transition to renewable sources of energy
- Maximize recovery or reuse at the end of the product life cycle



# Negative Feedbacks to Overcome: Sustainable Energy Challenge

“Over four decades, (US) Administrations have emphasized the need for sustainable and secure sources of energy to little avail.”

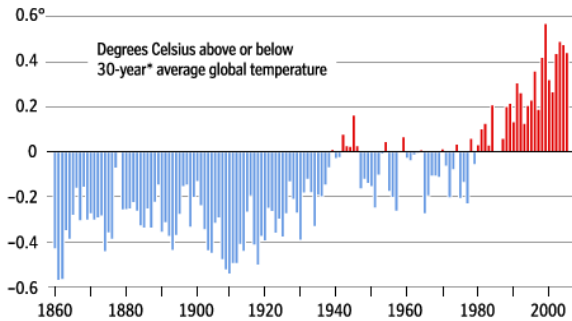
***Prioritize***, 100 day Energy Action Plan US

Council on Competitiveness

<http://www.compete.org/>



# Greening of Business is Crucial to Promoting Sustainability



Global Trends/  
Societal Pressure



Risk Management  
/Insurers

Regulations/  
Regulators

Finance/  
Investors

UN/Global  
Society

Business  
Strategy

**Enhance the  
Bottom Line**

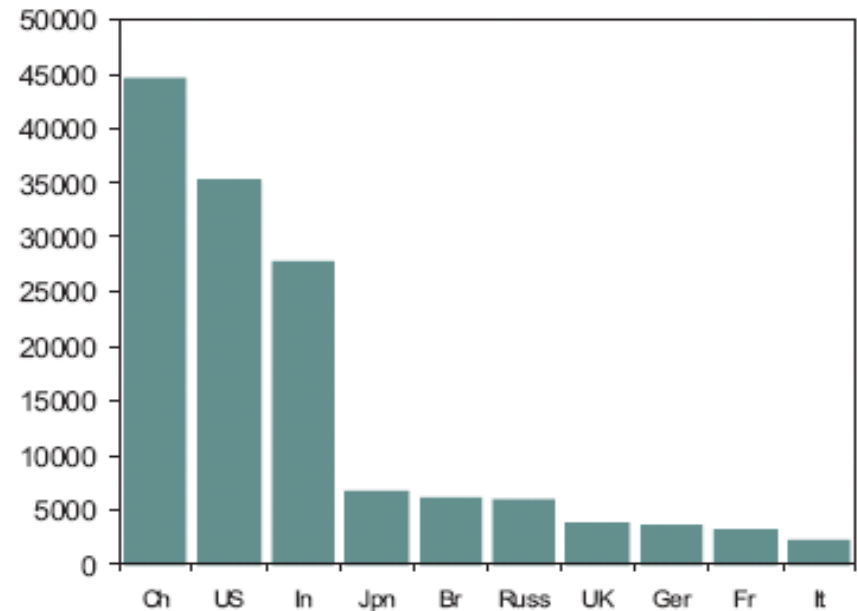
Sustainability  
Enhance the  
Bottom Line

# Economic and Social Challenges

Projected global increases in the next 50 years:

- Population: 50%
- Economic activity: 500%
- Energy consumption: 300%
- Manufacturing activity: 300%
- Throughput of materials: 300%

## BRIC Economies in 2050



(G8 Projections in 2003 US\$ billions)



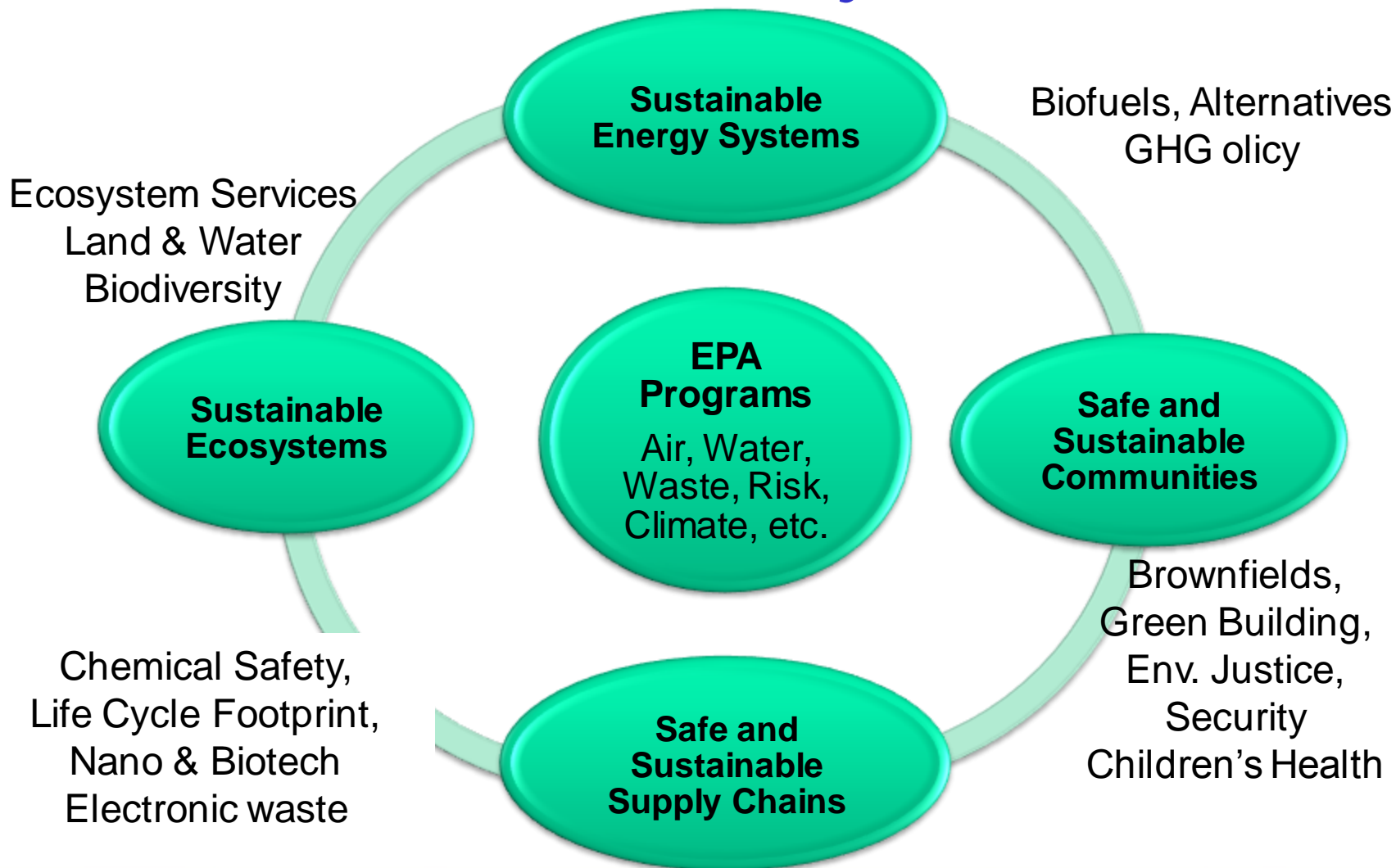
## *Lisa Jackson Emphasizes Seven Goals*

# ***EPA Administrator Sets Priorities***

- Taking action on climate change
- Improving air quality
- Assuring the safety of chemicals
- Cleaning up our communities
- Protecting America's waters
- Expanding the conversation on environmentalism and working for environmental justice
- Building strong state and tribal partnerships



# Concept Model of Integrating Programs into Sustainability Themes



# *Sustainability Road Map*

- **Government:** Set goals, guidelines, polices, incentives, regulations
- **Technology and science:** Help make it happen
  - Create designs for effective materials use
  - Research new technologies for changes in industrial production
- **Firms:** Use sustainability as good business sense
  - Reduce risk and enhance innovation
  - Create Green jobs ad advance competitiveness
- **Consumers:** Boost understanding and support



# EPA 40th Birthday

Yellowstone Park established 1872



National Park Service est. 1916

Donora, PA fatal inversion 1948



"Silent Spring" published 1962

Cuyahoga River, Cleveland fire 1969



UN Earth Summit 1992

Hurricane Katrina 2004



Copenhagen Climate Conference 2009

Kyoto Protocol adopted 1997

Millennium Ecosystem Assessment 2005



21<sup>st</sup> CENTURY  
life cycle thinking

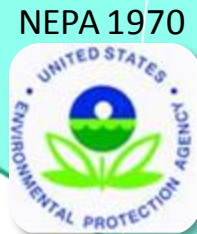
Global collaboration  
Market-based incentives

Integrated interdisciplinary solutions

Investments in sustainable systems

19<sup>th</sup> CENTURY  
focus on land conservation

20<sup>th</sup> CENTURY  
focus on risks due to pollution



RESEARCH & DEVELOPMENT

Building a scientific foundation for sound environmental decision

2050



*Thank You*

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